REQUEST FOR PROPOSALS
DAM REMOVAL FEASIBILITY AND IMPACT ANALYSIS

Macallen Dam, Lamprey River, Newmarket, NH

Introduction

The Town of Newmarket, New Hampshire requests proposals for a study of the feasibility and impact of modifying, partially and/or fully removing the Macallen Dam on the Lamprey River to address deficiencies in the dam noted by the New Hampshire Department of Environmental Services in May 2008. The dam has documented deficiencies, associated safety and liability issues, and has been classified as a "significant" hazard dam, by the New Hampshire Department of Environmental Services (NH DES). A 2008 study estimated the cost to address repairs at $505,000. However, prior to making a decision to go forward, the Town would like to examine in detail the option of dam removal. Impacts to be explored include, but are not limited to: natural resources, water quality, hydrology and hydraulics, infrastructure, economics, cultural and historic resources, fish passage, endangered species, recreation, flooding, and socio-economic and political concerns.

The study will supplement previous studies and is not meant to be the sole source of information upon which a final decision will be based. The consultant is not being asked to provide a recommendation on whether to modify or remove the dam. The consultant will present the information from its study, in an objective manner, to enable the Town of Newmarket to make a well-informed decision. It is anticipated the Town will vote on a preferred alternative at a future date. The estimated cost to analyze the feasibility and impact of dam removal is $125,000 to $150,000.

Background

The Macallen Dam was constructed in 1887 (NH DES Dam Bureau database). The dam is 27 feet tall and 150 feet wide. It was constructed of granite blocks, faced on the upstream side with concrete. A fish ladder was added along the southern bank of the river in the late 1960's. There is a functional, but aging, gate system (circa 1925) on the northern side of the dam. Macallen Dam is the last dam on the Lamprey River before the river discharges into Great Bay. The water below the dam is tidal and brackish. The dam was originally constructed to provide hydroelectric power to the adjacent mill buildings, which have been, or are being redeveloped for mixed-use development. The channels through the buildings that were designed to accommodate hydroelectric generation, have been removed or blocked off. The dam currently serves no flood control or power generation function.

The Macallen Dam has been owned by the Town of Newmarket since 2004. On May 5, 2008, the NH DES Dam Bureau inspected the dam and issued a Letter of Deficiency (LOD) to the Town. Deficiencies included deteriorated concrete on the upstream face of the dam, cracks and spalls in the concrete along the channel and gate structure walls, and small leaks and seeps along the left abutment wall. Also noted were issues with the discharge capacity of the dam. The dam has been classified as a "significant" hazard dam by the NH DES. While the dam is not in any immediate danger of failing and does not meet modern safety requirements, the NH DES is not taking any enforcement action or imposing any deadlines on the Town in the short term to take action to repair the dam so long as the Town is moving forward in earnest to study the feasibility of removing the dam, as an option.

In 2008, Wright-Pierce Engineers was hired by the Town to further evaluate deficiencies and provide alternatives to address them. The option of dam removal was not explored in detail and thus the consequences of this alternative were not evaluated. As part of the engineering work, a cost estimate to repair the dam was prepared. The estimated cost of repairs is $505,000.

This cost estimate does not include those "costs associated with increasing "the discharge capacity of the dam to safely pass the design flow of 2.5 Q 1000 or IDF) with one foot of freeboard and no operations." as set forth in the Letter of Deficiency from NHDES in 2008 The Wright-Pierce report does not include other potential costs for evaluating water quality upstream of the impoundment due to accumulated sediments. In addition, the recommended modifications to the dam do not solve water quality or fish passage difficulties. Further, downstream impacts to Great Bay due to dam removal have not been identified or assessed.

Flooding

The Town of Newmarket has experienced flooding in low-lying areas adjacent to the Lamprey River. During the floods in 2006 and 2007, damage to public and private property occurred. Some of the roads in the area were impassable and several residential areas were evacuated due to the inundation of flood waters. In response, a group of residents whose property was affected by the flooding petitioned the Town Council to consider a feasibility study to evaluate the potential impacts of removing or modifying the dam, including the potential impact on upstream flooding. The Town Meeting in 2011 voted an appropriation of $45,000 towards this study as a pre-requisite to any proposed capital investment by the Town in its repair. The Town is currently securing additional funding through various state and federal program and private organizations to complete this study.

Fish Restoration

The NH Fish and Game Department (NHF&G) has identified the Lamprey River as being among those rivers with the greatest potential for diadromous fish restoration. NHF&G has been actively working on restoring both river herring and American shad since the late 1970's with the goal of establishing self-sustaining populations. The NHF&G, in collaboration with the US Fish and Wildlife Services (USFWS) built a denil fish ladder at the Macallen Dam in the late 1960's to allow species to reach vital spawning and rearing habitat which had been inaccessible since construction of the dam. The fish ladder is state-owned and operated by NHF&G personnel. River herring, American shad, American eel, Sea lamprey and various species of salmon make up the majority of the diadromous fish species utilizing the ladder, making it one of the most successful fish ladders in New Hampshire.

Cultural Features

The Macallen Dam is a significant culture landscape feature within the "Newmarket Commercial and Industrial District" and was listed on the National Register of Historic Places in 1980. Local historic records indicate there was a fish weir at or near this location from ancient times. Historically, the dam was associated with the Newmarket Manufacturing Company, a Salem-based company that was established in 1822. The associated mills used water power for the production of cotton textiles. Justification of why this historic resource needs to be removed and discussion of other alternatives will need to be identified, as part of the Section 106 process of the National Historic Preservation Act. The Town of Newmarket will work with the NH Division of Historical Resources (NHDHR), the Newmarket Advisory Heritage Commission, the Newmarket Historical Society, consulting parties, interested citizens, Lead Federal Agency representative, and others as identified throughout the project duration to ensure compliance with these regulations.

Water Quality

The Lamprey River is legislatively classified as a Class B (swimmable, fishable) and is managed under the Federal Clean Water Act by NHDES to maintain those conditions. Water quality generally remains high in large part due to the new wastewater treatment plant in Epping, a significant amount of land protection within the watershed, local zoning ordinances that protect shoreland, and good land management by property owners. Despite these efforts, water quality issues do exist due to the rapid runoff of stormwater, which erodes banks and cause siltation, and carries with it agriculture waste, chemicals applied to lawns, sand, salt and pollutants that wash off pavement, roof tops and other impervious areas, and increase the river's temperatures. The lack of vegetated buffers along the river means that soils are not stabilized and nutrients can be readily carried into the water. Low rivers flows during periods of drought concentrate nutrients causing high dissolved oxygen rates in the River, algae blooms and concentrations of

copper and zinc which are harmful to aquatic and riparian life in the river. (Source: Lamprey River Management Plan, prepared by the Lamprey River Advisory Committee, 2006.)

The Lower Lamprey River downstream from the Wiswall Dam to the Macallen Dam has three reaches which have been listed on the States Section 303 (d) list for water quality issues. The impoundment just upstream of the dam (Assessment Unit NHIMP600030709) and River Reaches NHRIV600030709-08 and 09) have pH impairments for not supporting aquatic life (5-P and 5-M). This is likely naturally occurring from high dissolved organic matter in the river and associated organic acids which are contributed by the abundance of wetlands within the Piscassic River watershed. (Source: Michelle Daley, Research Associate at the UNH Water Resource Center).

Deliverable

The Town of Newmarket would like to evaluate the impacts of full and partial dam removal and determine if these options are prudent, feasible, cost effective, and in the best interest of the people of Newmarket. In conjunction with the studies that have been developed thus far regarding modification of the dam, this study will complete a review of the alternatives so the Town is well-informed and is able to vote on a preferred alternative in the future. The Town of Newmarket has prepared this Request for Proposal, in cooperation with the public, the Steering Committee, and project partners to solicit proposals from qualified consultants to provide the deliverables requested in the following scope of services. The Town reserves the right to award the contract for the project in phases as grant monies become available.

Selection Procedure

Consistent with the Town of Newmarket Purchasing Policy, adopted by the Newmarket Town Council on August 5, 2009, the procurement of these professional services shall be negotiated by the affected departments (Public Works and Planning) in consultation with the Steering Committee, on the basis of demonstrated competency and qualifications at fair and reasonable fees.

1. Proposals will be submitted in a two envelope system. Proposals must be submitted in a separate sealed envelope plainly marked, **"Lamprey River Macallen Dam Removal Feasibility and Impact Analysis—Consulting Services".** Consultants are required to submit eight (8) original hard copies and one (1) electronic copy as a PDF of their "Non-Price Proposal" package. PDFs will be submitted on CD. Double-sided copies are appreciated. The package shall include:
    a. Technical Proposal, not to exceed thirteen (13) typed, single-spaced pages.
    b. Statement of Qualifications and directly relevant work experience, not to exceed seven (7) pages. The consultant shall clearly identify a primary contact

for their proposal and clearly provide that person's phone number and email address.

c. List of references who may be contacted about the consultant's qualifications and work experience, not to exceed one (1) page.
d. Curriculum vitae or resumes for project team members, not to exceed two (2) pages per team member; and not to exceed a total page limit of fifteen (15) pages for the entire project team.
e. Timeline to complete individual tasks outlined in the RFP. The timeline will be in GANTT format.

In a separate sealed envelope, only one (1) cost proposal shall be submitted. This envelope shall be clearly marked **"Lamprey River Macallen Dam Removal Feasibility and Impact Analysis — Cost Proposal".**

2. The Steering Committee will evaluate the proposals based on the following criteria:
   a. Experience of firm and assigned staff performing dam removal feasibility and impact studies;
   b. Experience of firm and assigned staff with dam removals;
   c. Experience of firm and assigned staff with bridge design and scour analysis;
   d. Knowledge of riverine and geomorphic processes;
   e. Environmental engineering and design experience;
   f. Knowledge of riverine ecological systems;
   g. Clarity and presentation of proposal;
   h. Knowledge of the local, state and federal permits and authorizations required for projects in New Hampshire, including the National Historic Preservation Act Section 106 consultation process;
   i. Experience and success obtaining grants to fund dam removal and follow-up studies;
   j. Demonstration of successful cooperation with local, state and federal agencies, project stakeholders, and the public;
   k. Demonstration of implementing creative solutions to complex river issues;
   l. Health and safety policies and staff training;
   m. Availability of applicable insurance;
   n. Financial capability; and
   o. Current and anticipated workload

The proposals will be opened at a meeting of the Macallen Dam Removal Steering Committee at 7:00 pm on [DATE TO BE PROVIDED] at the Newmarket Town Hall in the Town Council Chambers located at 186 Main St, Newmarket, NH. Only the

consulting services envelopes will be opened and the cost proposal envelopes will remain sealed.

4. The Steering Committee will review all proposals and rank them according to the criteria outlined in Section 2 above. The Steering Committee will determine the top finalists based upon a review and ranking process. These firms will be asked to interview with the Steering Committee. Those firms invited to interview will ensure that the anticipated project managers, individuals responsible for public presentations, and sub-consultants (if applicable) for this project be present during the interview.

5. Following the interviews, the Steering Committee will rank the interviewed consultants according to preference for hiring to conduct the project. After the ranking is complete, the Steering Committee will open the cost proposal for the highest ranking consultant. The Steering Committee will proceed with contract negotiations with the firm first ranked. If negotiations are unsuccessful, the Steering Committee will contact the second ranked consultant and proceed with contract negotiations with that firm, and so on.

Pre-Proposal Site Visit:

A pre-proposal brief presentation on the project will occur at the Newmarket Town Hall on [DATE TO BE DETERMINED] and will be immediately followed by a visit to the dam site. The Newmarket Town Hall is located on 186 Main St. in Newmarket, NH. The dam is located in the center of town in Newmarket, NH. The dam site is just downstream from Veteran's Bridge on Route 108. Parking is available at the Town parking lot behind the Library at the corner of Main and Elm Streets. See attached location map. This pre-proposal meeting and site visit is not mandatory.

Questions and Due Date:

Town of Newmarket staff will not respond to telephone questions about the RFP. Questions concerning this RFP must be received at the pre-proposal meeting or in writing to Town of Newmarket (see mailing address below) by 4:00 p.m. on [DATE TO BE DETERMINED]. Questions may also be submitted via e-mail to Diane Hardy, dhardy@newmarketnh.gov (Subject Line: Lamprey River Macallen Dam Feasibility and Impact Analysis RFP Question) or by facsimile machine to (603) 659-8508 (Attention: Diane Hardy). The Town of Newmarket will post responses to all submitted questions at [WEBSITE ADDRESS TO BE DETERMINED].

All proposals must be titled "Lamprey River Macallen Dam Feasibility and Impact Analysis RFP" and received by 4:00 p.m. on [DATE TO BE DETERMINED] at:

Newmarket Town Hall
Office of Town Planner
186 Main Street
Newmarket, NH 03857

Any proposals received after this specified time will not be considered.

General:

Each proposer must submit a two-part proposal, consisting of a "Non-Price Proposal" and a "Price Proposal" as outlined in the Selection Procedure section. The Price Proposal shall be submitted in a separate sealed envelope labeled as **"Lamprey River Macallen Dam Feasibility and Impact Analysis—Cost Proposal".**

Time Line:

DATE	Request for Proposals (RFP) release
DATE	Pre-proposal site visit
DATE	Due date for questions about RFP
DATE	Answers to submitted questions posted to web site
DATE	Due date for proposals
DATE	Consulting Services proposals will be opened by the Macallen Dam Removal Steering Committee at 7:00 pm on at the Newmarket Town Hall in the Town Council Chambers located at 186 Main Street, Newmarket, NH 03857
DATE	Final selection is anticipated.

Disclaimer:

This RFP does not commit the Town of Newmarket to award a contract or to pay any costs incurred during the preparation of the proposal or during the interview process. The Town of Newmarket reserves the right to reject any or all of the proposals for completing this work. The Town of Newmarket also reserves the right to eliminate the need for the selected consultant to complete one or more tasks, pending the outcome of preceding related tasks or issues, and/or the availability of project partners to complete that task.

Federal Compliance:

Partial Funding for this project is provided from the "National Partnership between the NOAA Community-Based Restoration Program and Restore America's Estuaries. The Town and its consultants must agree to acknowledge the RAE-NOAA partnership in all publications.

Funding for the project detailed in this solicitation is provided in part with Federal grant funds obtained through an agreement with the _____. Recipients of these grants and their subcontractors are required to meet certain contract requirements including the federal requirements detailed in Title 40 of the Code of Federal Regulations (CFR) parts 7, 12, 31, 33, 34, 36, and additional regulations referenced therein. It is highly recommended that the applicant review the relevant CFR sections available on the US Government Printing Office's webpage: http://ecfr.gpoaccess.gov/cgiNtext/text-idx?sid=98dba274891fffb61aa3f390c42f4924&c=ecfr&tp1=/ecfrbrowse/Title40/40cfrv1__02.tpl.

Scope of Services

The consultant shall provide detail on their approach and deliverables for studying the feasibility of short-term and long-term impacts associated with modifications to the dam and partial and full dam removal in accordance the following tasks and subtasks:

Task 1. Existing Data Collection and Review

- Collect and review available data and resource information on file with the Town of Newmarket, New Hampshire Department of Environmental Services (NHDES), New Hampshire Fish & Game Department (NHF&G), other state agencies, National Oceanic Atmospheric Administration (NOAA) US Army Corps of Engineers (ACOE), US Fish and Wildlife Service (USFWS), other federal agencies and other applicable sources, including the Lamprey River Watershed Association and Lamprey River Local Advisory Committee. Existing studies can be found at: [WEB ADDRESS TO BE PROVIDED unless otherwise noted. Existing information to include, but not be limited to, the following existing data:

1.1.1 Draft Lamprey River Water Management Plan, April 11, 2011, prepared by the University of New Hampshire and Normandeau Associates, http://www.des.state.nh.us/rivers/instream/

1.1.2 Wright-Pierce Structural Analysis and Recommendations re: Macallen Dam, March 8, 2010.

1.1.3 Lamprey River Baseline Fish Sampling, August 25-29, 2003. http://des.nh.gov/organization/divisions/water/wmb/rivers/instream/lamprey/documents/report_bfc_200500216_final.pdf

1.1.4 Lamprey River Management Plan for the towns of Durham, Epping, Lee and Newmarket, prepared for the Lamprey River Advisory Committee, May 19, 2008. http://des.nh.gov/organization/divisions/water/wmb/rivers/instream/lamprey/documents/lamprey_plan.pdf

1.1.5 Newmarket Master Plan, sections on Recreation, Open Space and Conservation and Water Resources

1.1.6 NH Department of Environmental Services Dam Bureau files

1.1.7 NH Division of Historical Resources Request for Project Review for the Lamprey River Macallen Dam

1.1.8 New Hampshire Department of Environmental Services Volunteer River Assessment Program data http://des.nh.gov/organization/divisions/water/wmb/vrap/lamprey/documents/lmp_data10.pdf

1.1.9 State of the Estuaries Report 2009 http://www.prep.unh.edu/resources/soe_report.htm

1.1.10 Piscataqua Region Estuaries Partnership (PREP) 2010 Comprehensive Conservation and Management Plan http://www.prep.unh.edu/resources/pdf/piscataqua region 2010-prep-10.pdf

1.1.11 Various grant applications prepared by the Town of Newmarket for funding assistance for the Macallen Dam Removal Feasibility Study.

1.1.12 University of New Hampshire (UNH) research being conducted by Ann Scholz, Graduate Research Assistant and Cameron Wake of the Earth, Ocean and Science Institute for studying land use and modeling flooding associated with climate change on the Lamprey River and on-going graduate research on removal of the Macallen Dam being conducted under the direction of Professor Thomas Ballestero of the UNH Civil and Environmental Engineering Department.

1.2 Dam inspection — Add Alternative. Should the consultant determine that a dam inspection is necessary at this site to support the feasibility analyses described here, the consultant shall, in their technical proposal, provide justification for such investigations and a detailed description of the proposed work. If the inspection is deemed necessary, the inspection must be conducted by a Professional Engineer registered in the State of New Hampshire.

1.3 Review and document the available existing data and resource information regarding the dam and dam site, river, the bridge such as aerial photographs, dam inspection reports, past studies, watershed history, potential contamination information, information regarding abutting property owners, information on historical diadromous fish runs and/or fisheries, and information on cultural resources. Prepare a technical summary memorandum discussing these and any additional critical issues discovered based on a review of the information collected above, and on likely impacts of dam removal.

Task 2. Field Survey and Base Mapping

2.1 Dam Structures Topography Survey - The consultant shall complete a field survey of the dam structure, fish ladder, gate system, retaining walls on both sides of the dam, Veteran's Bridge, and any impacted utilities and/or structures identified in Task 1. This should include property lines, wetland boundaries, floodplain boundaries, and existing easements.

2.2 River/Impoundment Survey - The consultant shall complete a river/impoundment survey of the project area of sufficient detail to conduct the hydrologic analyses outlined below in Task 4 using currently available data and additional data as necessary to address pertinent tasks. Describe the rationale for the extent of survey and methods outlined, and equipment availability to your respective contracting firm.

2.3 Existing Conditions Plan and Base Map - Depict the structures, topography and impoundment bathymetry in plan view and cross section. LIDAR information has been completed for the coastal regional and is now available for topography.

2.4 Deed and Title Search on the dam site, impoundment and abutting properties. As part of the Existing Conditions Plan preparation, the consultant shall complete a deed and title search using existing documents available from the Town of Newmarket and Rockingham County Registry of Deeds. Property ownership, Map and Lot Numbers, and property boundary information shall be used in preparing an Existing Conditions Plan for the dam site and will provide specific property information.

Task 3. Sediment Evaluation

The consultant shall perform a sediment evaluation to survey contaminant levels in the impounded sediment to determine the short and long term risks to human health and/or ecological risk and an estimate of the likely cost of removal.

3.1 Develop a Quality Assurance Project Plan (QAPP) following EPA guidelines and facilitate QAPP review process with NHDESand EPA; address all NHDES and EPA comments and provide final approved QAPP to NHDES.

3.2 The consultant shall sample and test sediments for contamination. The consultant shall prepare a sediment sampling plan to assess sediment quantity and quality, and physical parameters in the Lamprey River Macallen Dam impoundment according to the NHDES Sediment Quality Guidance document

ht t p://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-04-9.pdf. Work will be limited to sediment chemical analysis and physical parameters. If additional work is necessary in order to evaluate the ecological and/or human risk, the following work will be completed:

3.2.1 Add Alternative - Sediment Toxicity Bioassay
3.2.2 Add Alternative - Community Assessment, including renderings showing visual impacts and aesthetic considerations.

3.3 Analyze sediment transport capabilities and mobility in conjunction with Task 3.2. Assess sediment impacts upstream and downstream for both full and partial removal relative to sediment analysis results, mobility, and deposition; and recommend appropriate sediment management options.

3.5 Develop a conceptual plan and cost estimate for removal, dewatering, and disposal of sediment and other waste materials associated with full or partial removal of the Macallen Dam in compliance with local, State, and Federal law.

Task 4. Hydrology and Hydraulics Analysis

4.1 Conduct a hydrologic study on the Lamprey River including the dam, Veterans' Bridge, extent of impoundment and surrounding areas. Incorporate generated data into the dam removal analysis.

4.2 Conduct a hydraulic analysis to predict water surface and velocity profiles for both existing and post-removal conditions (including partial and full removal) of the Lamprey River Macallen Dam. Evaluate post removal conditions and review available data of historical, recent, and potential storm events and tidal storm surges. Incorporate generated data into dam removal and swim events analysis.

4.3 Perform a scour analysis on the Veterans' Bridge, foundations, water withdrawals, and any other impacted infrastructure, and impacted utilities identified in Task 1 to evaluate the potential impact of dam removal upstream and downstream.

4.4 Coordinate with the Army Corps Cold Regions Research and Engineering Laboratory to determine the impacts of ice and ice jams associated with dam removal and the need for further surveys. Prepare summary of findings.

4.4.1 Add Alternative' - Conduct a riverine ice survey upstream and downstream of the dam in order to collect ice data pre-dam removal. This data will assist the Army Corps Cold Regions Research and Engineering Laboratory in the determination of potential ice jam development in the event of dam removal. Prepare summary of findings.

4.5 Assess the impact of dam removal on the boundaries of FEMA designated floodway and 100 year flood plains.

4.6 Evaluate and summarize findings on the impact of dam removal on private wells. Incorporate data on municipal wells and include a technical evaluation the Town's future ability to withdraw water from the Lamprey River for water supply needs.

Task 5. Cultural Resources

5.1 Historic and Cultural Resource Assessment — The consultant's team shall include a qualified historian and other professionals to conduct historic and cultural resource assessment and coordinate the review with the NH Division of Historic Resources (NHDHR), the Steering Committee, the Newmarket Advisory Heritage Commission and other interested parties. The Request for Project Review (RPR) will be by the Town of Newmarket in conjunction with the NHDES Dam Bureau. The NHDHR generalized guidelines on conducting historic resource reviews for dam removal projects is attached to this RFP. The level of information required is currently limited to the following sections: Archaeological Resources: Phase IA (Reconnaissance-level) and Historic/Architectural/Engineering Resources: Phase I. Additional surveys may be required as a result of the outcome and recommendation of these surveys, and through coordination with the NHDHR, Lead Federal Agency representative(s), local cultural resource commissions/committees as commensurate with the National

Historical Preservation Act Section 106 regulations. Coordinate with the NH DHR on behalf of the project partners and Lead Federal Agency. A qualified historian shall conduct this work and be a person with a bachelor's or a graduate degree in history or closely related field with at least five (5) years full-time experience in research, writing, teaching, interpretation or other demonstrable professional activity with an academic institution, historical organization or agency, museum or other professional institution concerning historic resources in New Hampshire. Additional potential surveys are noted below as optional until deemed required through consultation:

5.1.1 Add Alternative - Archaeological Resources: Phase IB (Reconnaissance-level)

5.1.2 Add Alternative - Historic/Architectural/Engineering Resources: Phase II

Task 6. Wildlife

6.1 Assess the impact of current dam and partial/full dam removal on rare species, species of concern, threatened and endangered species, general wildlife, and habitat located both upstream and downstream of the project area.

Task 7. Other Issues of Importance

7.1 Fish passage. Assess whether the site - if the dam is removed - would be passable by the fisheries of interest: American shad, river herring, Atlantic salmon, American eel, sea lamprey, and other resident species.

7.2 Structural Evaluation of impacts to bridge and infrastructure and adjacent buildings. Assess impact of partial/full dam removal on Veterans' Bridge and adjacent properties, pier and foundation stability, and other infrastructure. Identify alternatives to protect foundations and discuss appropriate project design options with bridge stability and other infrastructure as a stated goal.

7.3 Recreational Usage. Assess the impact of dam removal on boating, angling, swimming and other recreational uses of the river and impoundment.

7.4 Assess fiscal impacts on adjacent property values and tax base, in relation to reduced municipal costs associated with operation and maintenance of the dam.

7.5 Other socio-economic and political issues may arise during the consultant's research and investigation on the Lamprey River. The consultant shall describe how such issues would be addressed and reported.

7.6 Assess the potential for invasive species to populate exposed lands in the impoundment area post-dam removal, and recommend methods of mitigating this occurrence, if appropriate.

7.7 Evaluate the current practice of water withdrawals, and the potential impact of dam removal on, the fire department, mill facilities, water treatment plant, upstream dam, and other surface water withdrawal facilities that utilize the Lamprey River. Consider previous impact studies and identify potential impacts for dam removal.

7.8 Outline and define ownership and property rights associated with new land that may be exposed when the river dries. (To be discussed with further)

Task 8. Water Quality

8.1 Evaluate current water quality data and potential water quality with the dam removal option as it relates to fish and other biota.

8.2 Evaluate current water quality data and potential water quality data with the dam removal option as it relates to drinking water supply.

8.3 Evaluate current and potential water quality with respect to recreational use.

Task 9. Dam Deconstruction Alternatives and Impact Analysis

9.1 Identify and evaluate alternatives for deconstruction and removal of the dam structure, including considerations of access for equipment, materials, and manpower, proposed trucking routes, and potential safety and liability concerns. Identify and evaluate upstream and downstream areas affected and potential areas requiring reclamation;

9.2 Identify and evaluate how the Macallen Dam is tied into existing infrastructure, including retaining walls, the potential impact of dam removal on that infrastructure, and means and methods to eliminate or reduce the potential impact of dam removal on that infrastructure;

9.3 In light of the concepts developed in connection with Task 9, evaluate options for removal or partial removal of the Macallen Dam;

9.4 Identify and evaluate the possible need for structural stabilization of Veteran's Bridge, retaining walls, adjacent buildings and structures, and/or other infrastructure in total or partial deconstruction scenarios.

9.5 Provide an estimate of how dam removal would affect the acreage, type, and function of wetlands within the influence of the project area.

9.6 Develop cost estimates for scenarios deemed feasible, including permitting, engineering, design, and construction/deconstruction efforts.

9.7 Develop a timeline in GANTT format for execution of scenarios deemed feasible. Include prerequisite requirements where applicable, such as the implementation of alternative water supplies and other potential constraints.9.8 Discuss potential options of river structure after dam removal, with reference to the natural state of the dam site prior to dam construction. (i.e. will dam removal leave a similar falls structure or will it change the topography of the river at that point?)

Task 10 Hydroelectric Potential (To be discussed further by committee)

Task 11 Outreach and Coordination Meetings

11.1 Coordinate with project partners including Town of Newmarket, Macallen Dam Steering Committee, NH Department of Environmental Services (NHDES), NH Fish and Game Department (NHF&G), Environmental Protection Agency (EPA), National Oceanic Atmospheric Administration (NOAA), US Fish and Wildlife Service (USFWS), Piscataqua Region Estuaries Partnership (PREP), The Nature Conservancy, The Conservation Law Foundation, Lamprey River Local Advisory Committee, Lamprey River Watershed Association, and others. A minimum of six (6) project progress meetings are expected with project partners. Project partners will be involved at the appropriate stages within the scope of work and as the project progresses.

11.2 The role of the consultant is to participate at meetings, provide information, and report on progress. Three public informational meetings are expected: 1) Initial project overview including timeline, issues to be addressed, and overview of existing data and review; 2) approximately midway through completion, present information collected to date and provide timeline for completion of work and final presentation of draft feasibility study; and 3) present draft final feasibility study and summary contained therein. The consultant will prepare visual aids for the public presentations and provide a qualified historian to attend one public informational meeting to present the findings of Task 5.1.

Task 12. Feasibility and Impact Analysis Report Preparation

12.1 The consultant will incorporate the results of each of the tasks outlined in this proposal into a comprehensive feasibility study report. The consultant is not being asked to provide its recommendation on whether to modify or remove the dam. The consultant will present the information from its study in an objective manner to enable the Town of Newmarket to make a well-informed decision. A draft feasibility study will be prepared for review by the Town officials and project partners for review prior to public presentation. A final report will be prepared after the public has had an opportunity to review and provide comment. Report additional information needed and/or recommended outside of the tasks outlined.

12.2 Prepare a table that identifies the short term and long term consequences of dam removal as they relate to each of the tasks. Incorporate this table into the feasibility report.